UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,054	04/06/2000	Nir Yona	BEN MOSHE 3-1-1-2-1-2	8130

7590   08/02/2002

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ART UNIT	PAPER NUMBER
2181	

DATE MAILED: 08/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/544,054	YONA ET AL.
	Examiner	Art Unit
	Christopher E. Lee	2181

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-38</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-11,13-29,31-38</u> is/are rejected.

7) ☒ Claim(s) <u>12 and 30</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>06 April 2000</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

  If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All b)☐ Some * c)☐ None of:

    1. ☐ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

  a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4,6</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not

include the following reference sign(s) mentioned in the description:

a) Note the reference sign 35 on page 8, lines 18,22 and 23.

b) Note the reference sign 38 on page 2, line 32, page 13, lines 2,10,20,23 and page 16, line 4.

A proposed drawing correction or corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2.   The drawings are objected to because the comparison block 90 in Fig. 3 does not carry decision

labels on the outputs of it. It makes the examiner lead to confusion of it's interpretation.

A proposed drawing correction or corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3.   The disclosure is objected to because of the following informalities:

On page 6, lines 28-29, the term "a plurality of backplane...of the sub-buses" is illogical because

of the recursive usage of the word "sub-buses" in the term, which leads the term be indefinite.

On page 8, line 13, change "input" to --output--.

Appropriate correction is required.

Claim Objections

4.   Claims 2-12, 14-22, 24-30 and 32-38 are objected to because of the following informalities:

Regarding to claims 2-12, 14-22, and 32-38, substitute "A switch" by --The switch--.

Regarding to claims 24-30, substitute "A method" by --The method--.

Regarding to claim 22, substitute the term "top" by --to--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claims 1,2,11,23,25,27,28,31 and 34 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

Claims 1 and 23 recites the limitation "the bandwidth needs" in line 6 of claim 1 and in line 2 of

claim 23.

Claim 2 recites the limitation "the bandwidth capacity" in line 1.

Claim 11 recites the limitation "the entitlement" in line 2.

Claim 25 recites the limitation "the utilization" in line 2.

Claim 27 recites the limitation "the priority" in line 2.

Claim 28 recites the limitation "the minimal number of sub-buses" in line 2.

Claim 34 recites the limitation "the number of types of cards" in line 2.

There are insufficient antecedents bases for these above limitations in those claims.

And, Claim 31 recites the limitation "a plurality of backplane sub-buses which are used for

communication between groups of the sub-buses" in lines 3-4, wherein the term "between groups of the

sub-buses" makes the claim be indefinite.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis

for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Prince et al. [USPN

5,734,656].

Referring to claim 1, the term "the bandwidth needs" is considered as --a bandwidth needs--

because of the claim rejection – 35 USC § 112, 2nd paragraph about the term "the bandwidth needs" in

claim 1. Prince et al. disclose a modular switch (network hub 200 of Fig. 2), comprising: a plurality of

backplane sub-buses (cell slots in Fig. 7; i.e. time dimension multiplexing buses of ATM switching

backplane bus; See col. 7, lines 33-37); a plurality of cards (LAN modules 201-204 and ATM module 206

of Fig. 2) which are each allocated one or more of said backplane sub-buses (See col. 12, lines 36-40);

and a controller (master control processor[MCP] 430 of Fig. 4) which dynamically allocates said

backplane sub-buses to said plurality of cards, based on a bandwidth needs of said cards (See col. 12,

lines 32-35 and col. 13, lines 41-46).

Referring to claim 2, the term "the bandwidth capacity" is considered as --a bandwidth capacity--

because of the claim rejection – 35 USC § 112, 2nd paragraph about the term "the bandwidth capacity" in

claim 2. Prince et al. disclose said switch according to claim 1, wherein a bandwidth capacity (i.e. full

bandwidth of ATM switching core 370 in Fig. 3) of substantially all said backplane sub-buses is less than

said sum of said maximal transmission bandwidth capacities of said cards (See col. 5, lines 41-47 and col.

9, lines 4-8; i.e. wherein the fact that the full bandwidth of the ATM switch is thought of as being

available to all devices attached to the network implies that the sum of bandwidth capacities of network

devices is greater than the full bandwidth of the ATM switching core).

Referring to claim 3, Prince et al. disclose said switch according to claim 1, wherein said

controller (MCP 430 of Fig. 4) is implemented by one (LAN module 401 of Fig. 4) of said cards (LAN

modules 401,412 of Fig. 4; See col. 12, lines 46-49).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

10.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656].

        Referring to claim 4, Prince et al. disclose said switch according to claim 3, wherein 1) said

controller is implemented by one of said cards (See above claim 3 rejection.) and 2) said controller (MCP

430 of Fig. 4) may reside on any LAN or ATM module coupled to the switch fabric without having any

affect on the functionality of the device (See col. 12, lines 49-53). It is unclear whether Prince et al.

disclose one or more said cards have said controllers and one of said cards is selected dynamically.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to have included 1) said controllers in said two or more modules, and 2) said dynamic selection

feature in said switch for the advantage of a fault tolerance capability based on said redundant controllers

on said two or more modules.

11.   Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656] in view of Bonomi et al. [USPN 5,838,681].

        Referring to claim 5, Prince et al. disclose all the limitations of claim 5 except that do not teach

said cards transmit messages which indicate their bandwidth needs to said controller. Bonomi et al.

disclose a dynamic allocation of port bandwidth, including cards (adaptors 100 of Fig. 4) transmit

messages (See col. 9, line 29) which indicate their bandwidth needs (i.e. an explicit request for

bandwidth; See col. 9, line 25) to a controller (CPU 96 of Fig. 4). Refer to col. 9, lines 24-30. Therefore,

it would have been obvious one of ordinary skill in the art at the time the invention was made to have

included said dynamic allocation of port bandwidth, as disclosed by Bonomi et al., in said switch, as

disclosed by Prince et al. for the advantage of allowing a bandwidth allocation based on the particular

type of data awaiting transfer (See col. 9, lines 16-24 of Bonomi et al.).

12.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656] in view of Jaramillo et al. [USPN 6,016,528].

        Referring to claim 6, Prince et al. disclose all the limitations of claim 6 except that do not teach

each of said cards in said switch has a priority value which indicates its entitlement to bandwidth.

Jaramillo et al. disclose a priority arbitration system, wherein each of cards (device 0-5 in Fig. 3) has a

priority value which indicates its entitlement to bandwidth (See col. 5, lines 23-34) and a controller (PCI

arbiter 508 of Fig. 5) allocates backplane (i.e. PCI bus) sub-buses (i.e. ownership of PCI bus cycles) based

on said priority values (i.e. device priorities) of said cards (PCI agents 501-507 of Fig. 5). See col. 5, lines

35+. Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was

made to have included said priority arbitration system, as disclosed by Jaramillo et al., in said controller

of said switch, as disclosed by Prince et al. for the advantage of providing predictable latency and

guaranteed access for said cards coupled to said backplane sub-buses, and providing an arbitration

process which is much more flexible with regard to allocating bus bandwidth (See col. 8, lines 38-42 from

Jaramillo et al.).

13.   Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656] in view of Applicant's Admitted Prior Art (hereinafter AAPA).

        Referring to claims 7-8, Prince et al. disclose all the limitations of claims 7-8 except that do not

disclose 1) all said backplane sub-buses have said same bandwidth capacity, and 2) said plurality of

backplane sub-buses comprise at least two sub-buses with different bandwidths. However, AAPA states

all backplane sub-buses (i.e. cell slots) in a switch (i.e. modular switch) have a same bandwidth capacity

(See page 1, lines 16-18 of AAPA), and said plurality of backplane sub-buses (i.e. cell slots) in a switch

(i.e. modular switch) comprise at least two sub-buses with different bandwidths (i.e. some large bus

portions and other smaller bus portions; See page 1, lines 20-21 of AAPA).

14.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656] in view of Shima et al. [US 2001/0043700 A1].

Referring to claim 9, Prince et al. disclose all the limitations of claims 9 except that do not

disclose said controller confiscates one or more sub-buses from one or more of cards when said one or

more sub-buses are more needed by one or more other cards. Shima et al. disclose a bandwidth allocation

method (See Fig. 8), wherein a controller (peripheral device 230 of Fig. 2) confiscates one or more sub-

buses (i.e. bandwidth) from one or more of cards (devices in multimedia network 100 of Fig. 1) when said

one or more sub-buses are more needed by one or more other cards (See paragraph [0045], lines 1-7 on

page 4). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention

was made to have applied said bandwidth allocation method, as disclosed by Shima et al., to said

controller of said switch, as disclosed by Prince et al. for the advantage of providing for dynamic

reallocation of said bandwidth (See paragraph [0045], lines 13-14 on page 4 of Shima et al.).

15.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN

5,734,656] in view of Shima et al. [US 2001/0043700 A1] as applied to claim 9 above, and further in

view of Nakano et al. [USPN 6,400,819 B1].

Referring to claim 10, Prince et al., as modified by Shima et al, disclose all the limitations of

claims 10 including said bandwidth release stage, whereafter said controller allocates a confiscated sub-

bus to a card (See paragraph [0045], lines 8-13 on page 4 of Shima et al.) except that do not disclose said

allocation should be processed after receiving confirmation from said card from which said sub-bus was

confiscated that said sub-bus was freed from its allocation. Nakano et al. disclose a bandwidth release

module (See Fig. 17) , wherein a sub-bus (i.e. bandwidth) releasing stage includes a receiving

confirmation (box 1704; wait for acknowledgement packet) from a card (i.e. release requestor) from

which said sub-bus was confiscated that said sub-bus was freed from its allocation (See col. 13, lines 53-65). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said bandwidth release module, as disclosed by Nakano et al., in said controller of said switch, as disclosed by Prince et al. in view of Shima et al., for the advantage of providing an interface for accepting said bandwidth release with said receiving confirmation (See col. 14, lines 5-6 and Fig. 17 of Nakano et al.) before said dynamic reallocation of said bandwidth (See paragraph [0045], lines 13-14 on page 4 of Shima et al.).

16.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Prince et al. [USPN 5,734,656] in view of LaBerge [USPN 5,771,358].

        Referring to claim 11, the term "the entitlement" is considered as --an entitlement-- because of the claim rejection – 35 USC § 112, 2nd paragraph about the term "the entitlement" in claim 11. Prince et al. disclose all the limitations of claim 11 except that do not disclose said controller calculates, for each of said cards, a bus demand value which represents an entitlement and need of said card to receive a sub-bus. LaBerge disclose a method for apportioning computer bus bandwidth, wherein a controller (bus controller 24 of Fig. 1) calculates, for each of said cards (bus requesters 26,28,30,32 of Fig. 1), a bus demand value (i.e. weighting value) which represents an entitlement and need of said card to receive a sub-bus (See col. 3, lines 33-36), and said controller allocates free sub-buses which are not allocated to said cards with the highest bus demand values (See col.4, lines 30-32 and lines 37-40). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have applied said bandwidth allocation method, as disclosed by LaBerge, to said controller of said switch, as disclosed by Prince et al. for the advantage of apportioning said bandwidth based on said bus demand value enables higher bandwidth cards to continue to operate at a relatively high bandwidth when said bus is saturated (See col. 6, lines 19-21 of LaBerge).

17.   Claims 13-14,16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Porter et al. [PCT

WO 93/15464; cited by applicant].

Referring to claim 13, Porter et al. disclose a modular switch (backplane 20 with line switches in

Fig 2), comprising: a plurality of backplane sub-buses ('N' switched lines of Fig 3; See page 7, lines 19-

23 and page 14, lines 20-23); and a plurality of cards (boards; See page 1, lines 9-10 and page 3, lines

21+) which are configurable to listen to a variable number of said backplane sub-buses (See page 4, lines

2-9 and page 15, line 35 through page 16, line 2).

Referring to claim 14, Porter et al. disclose at least one of said plurality of cards listens to fewer

than all the backplane sub-buses (See page 3, line 21 through page 4, line 6).

Referring to claim 16, Porter et al. disclose each of said cards is configured to listen (i.e.

communicate) to a respective group (i.e. cluster) of peer cards (i.e. a group of cards which have a

particular aspect of the operation). Refer to page 4, lines 2-6 and page 8, line 19.

Referring to claim 17, Porter et al. disclose said sub-buses to which each of said plurality of cards

listens are said sub-buses to which said respective group of peer cards transmit (See page 4, lines 2-6; i.e.

wherein the fact that board in a cluster communicates with other boards in the cluster implies that an 'N'

channel (i.e. sub-buses) to which each of said plurality of boards (i.e. a group of boards in a cluster)

listens (i.e. communicate) is said 'N' channel (i.e. sub-buses) to which said respective group of peer cards

(i.e. said group of boards in said cluster) communicate (i.e. transmit)).

Referring to claim 18, Porter et al. disclose each card (i.e. board) listens to said cards which listen

to it (i.e. because of communicating each other in a cluster of cards; See page 4, lines 2-6).

18.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO

93/15464; cited by applicant] in view of LaBerge [USPN 5,771,358].

Referring to claim 15, Porter et al. disclose all the limitations of claim 15 except that do not teach

a controller which dynamically changes said sub-buses to which each card listens. LaBerge discloses a

controller (bus controller 24 of Fig. 1) which dynamically changes (See col. 2, lines 23-29) said sub-buses

to which each card listens (See col. 5, lines 9+). Therefore, it would have been obvious one of ordinary

skill in the art at the time the invention was made to have included said dynamic embodiment of said

controller, as disclosed by LaBerge, in said modular switch, as disclosed by Porter et al. for the advantage

of enabling higher bandwidth cards to continue to operate at a relatively high bandwidth when said

backplane sub-bus is saturated (See col. 6, lines 19-21 of LaBerge).

19.   Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT

WO 93/15464; cited by applicant] in view of Fan et al. [USPN 6,219,706 B1].

Referring to claims 20-21, Porter et al. disclose all the limitations of claims 20-21 except that do

not teach 1) said peer group of one or more cards changes as a function of time, and 2) said peer groups

are reduced in size during high security times. Fan et al. disclose a firewall (i.e. access control system),

wherein a group of cards (i.e. particular users; See col.8, line 20) changes as a function of time (See col.8,

lines 19-21 and col. 9, lines 27-28), and said peer groups are reduced in size during high security times

(See col.8, lines 21-24; i.e. wherein the fact that certain users cannot communicate outside the local area

network during non-business hours implies that said group including said certain users (i.e. peer group) is

reduced in size during non-business hours (i.e. high security times)). Therefore, it would have been

obvious one of ordinary skill in the art at the time the invention was made to have included said access

control system, as disclosed by Fan et al., in said modular switch, as disclosed by Porter et al. for the

advantage of protecting a local area network using said modular switch from all uninvited sessions

initiated externally (See col. 8, lines 13-15 of Fan et al.).

20.   Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO

93/15464; cited by applicant] in view of Ha-Duong [USPN 5,768,270].

Referring to claim 22, Porter et al. disclose all the limitations of claim 22 except that do not teach

a filter which passes to said card only data from said sub-buses to which said card listens. Ha-Duong

discloses an ATM switch, wherein a filter for at least one of said cards which passes to said card only data

from said sub-buses to which said card listens (See col. 6, lines 17-20; i.e. wherein the fact that a filter

handles an input line of a concentrator in order to eliminate ATM cells which are not destined for its

group of outputs implies that said filter for input line of concentrator (which is ultimately connected to at

least one of said cards) passes to said card only ATM cells (i.e. data) from two-way lines (i.e. said sub-

buses) to its group of outputs (i.e. to which said card listens)). Therefore, it would have been obvious one

of ordinary skill in the art at the time the invention was made to have included said filter in said ATM

switch, as disclosed by Ha-Duong, in said modular switch, as disclosed by Porter et al. for the advantage

of outputting relevant ATM cells to said card (i.e. concentrator) (See col. 7, lines 4-5 of Ha-Duong).

21.   Claims 23-29 are rejected under 35 U.S.C. 102(b) as being anticipated by LaBerge [USPN

5,771,358].

         Referring to claim 23, the term "the bandwidth needs" is considered as --a bandwidth needs-- and

"the current bandwidth" is considered as --a current bandwidth-- because of the claim rejection – 35 USC

§ 112, 2nd paragraph about the term "the bandwidth needs" and "the current bandwidth" in claim 23.

LaBerge discloses a method of allocating sub-buses (i.e. apportioning bus bandwidth; See col. 1, lines 6-

8) to cards (bus requesters 26,28,30,32 of Fig. 1) of a switch (bus controller 24 of Fig. 1), comprising:

determining a bandwidth needs of each of said cards (See Fig. 3 and col. 5, lines 9-26); assigning each of

said cards a bus demand value (weighting value) which is a function (See col. 3, lines 35-36) of said

bandwidth needs of said card and a current bandwidth allocated to said card (See Fig. 2-3 and col. 3, lines

45+); and allocating (i.e. apportioning) said sub-buses (i.e. bus bandwidth) to said cards (i.e. bus

requesters) based on said bus demand values of said cards (See col. 3, lines 36-44 and col. 4, lines 21-28).

         Referring to claims 24-26, the term "the utilization" is considered as --an utilization-- because of

the claim rejection – 35 USC § 112, 2nd paragraph about the term "the utilization" in claim 25. LaBerge

discloses said method comprises 1) receiving messages (i.e. address strobes) from said cards, 2)

determining a measure of an utilization (See Fig. 3-4) of said sub-buses currently allocated to said card,

and 3) listening (i.e. monitoring) to said sub-buses currently allocated to said card (See col. 5, 61-63).

Refer to col. 5, lines 38-63.

Referring to claims 27-28, the term "the priority" is considered as --a bandwidth requirement--

and the term "the minimal number of sub-buses" is considered as --a static maximum requester

bandwidth-- because of the claim rejection – 35 USC § 112, 2nd paragraph about the term "the priority"

in claim 27 and the term "the minimal number of sub-buses" in claim 28. LaBerge discloses assigning a

bus demand value (i.e. weighting value) which is a function of 1) a bandwidth requirement of said card

(See col. 5, lines 58-61), and 2) a static maximum requester bandwidth which must be allocated to said

card (See col. 5, line 67 through col. 6, line 8).

Referring to claim 29, LaBerge discloses allocating sub-buses not currently allocated to a specific

card as additional sub-buses to said cards with the highest bus demand values (See col.4, lines 30-32 and

lines 37-46).

22.   Claims 19, 31-33, 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et

al. [PCT WO 93/15464; cited by applicant].

Referring to claim 19, Porter et al. disclose all the limitations of claim 19 except that do not teach

at least one card listens to fewer than all said cards that listen to it. The examiner takes Official Notice

that said configuration (i.e. few-to-many work group environment) is well known in the art of work group

environment setting with access privileges in network. Therefore, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to recognize said at least one card

listens to fewer than all said cards that listen to it via said work group environment setting with access

privileges since it would have allowed for greater security in said work group.

Referring to claim 31, the term "between groups of the sub-buses" is considered as --between

groups of the cards-- because of the claim rejection – 35 USC § 112, 2nd paragraph about the term

"between groups of the sub-buses" in claim 31. And, the term of the limitation "such that the cards...data

to each other" on line 6 in the claim is illogical because the pre-mentioned limitation (lines 3-4) claims

the sub-buses are used for a communication between groups of the cards, which means at least one of the

cards of one of the groups should directly and/or indirectly transmit to at least one of the cards of one of

the other groups for the communication between groups of the cards. Accordingly, this limitation in the

claim is ignored by the examiner for the purpose of the claim rejection. Porter et al. disclose a modular

switch (backplane 20 with line switches in Fig 2), comprising: a plurality of slots 21 (Fig. 2) for a

plurality of cards (boards; See page 1, lines 9-10 and page 3, lines 21+); a plurality of backplane sub-

buses (bus lines 1-96 of Fig 4; See page 14, lines 20-23) which are used for communication between

groups of said cards (See page 4, lines 2-6); and at least one controller (switching circuits 26 and central

processing unit 27 of Fig. 2, as combined) which is configurable to divide said cards into different

numbers of groups (See Fig. 1; Refer to page 14, line 22 through page 15, line 12 and page 15, line 28

through page 16, line 2).

Referring to claim 32, Porter et al. disclose said switch according to claim 31, wherein said at

least one controller is configurable to divide said cards into any number of groups between one and said

number of cards (See page 4, lines 2-6 and page 15, line 35 through page 16, line 2; wherein the fact that

the invention gives massive flexibility to a backplane and allows a wide number of different cluster

configurations implies that switching circuits and processing unit (i.e. controller) is configurable to divide

said slots into any number of groups between one and said number of slots).

Referring to claim 33, Porter et al. disclose all the limitations of claim 33 except that do not teach

said number of groups are configured by a user. The examiner takes Official Notice that said

configuration by said user is well known in the art of backplane bus configuration. Therefore, it would

have been obvious to one having ordinary skill in the art at the time the invention was made to recognize

said switch of Porter et al. can be reconfigured by a user since Porter et al. state 1) in page 7, lines 21-22

that a switch data database can be provided to connect said switch, 2) in page 8, line 19 that the invention

provides a reconfigurable backplane, and 3) in page 15, lines 10-12 that said reconfigured condition

remains unchanged until modification is desired in order to solve the problems of pre-configuration by a

manufacturer or an installer (i.e. configuration is not done by a user; See pages 2 and 3), and also since it

would have allowed for greater flexibility to said backplane being customized, re-configured by said user.

Referring to claims 35 and 36, the term of the limitation "the cards of the different...with each

other" on lines 1-2 in the claim 35 and the term of the limitation "the cards of the different...of backplane

sub-buses" on lines 1-2 in the claim 36 are illogical because the pre-mentioned limitation (lines 3-4 of the

claim 31) claims the sub-buses are used for a communication between groups of the cards, which means

at least one of the cards of one of the groups should directly and/or indirectly transmit to at least one of

the cards of one of the other groups for the communication between groups of the cards. Accordingly,

these limitations in those claims are ignored by the examiner for the purpose of the claim rejection. Porter

et al. disclose all the limitations of the claims 35 and 36. See the above claim rejection of the claim 31.

Referring to claim 37, Porter et al. disclose said switch according to claim 31, comprising a box

(i.e. a computer backplane; See Fig. 2 and title) having a plurality of slots (slots 21 of Fig. 2) in which

said cards (i.e. cards in said slots) are located. Porter et al. do not disclose wherein said cards of at least

one group are not located in adjacent slots. The examiner takes Official Notice that said cards of one

group are not located in adjacent slots (i.e. all said cards are inserted into non-adjacent slots) is well

known in the art of backplane bus configuration with a technology of programmatic switching circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was

made to recognize said cards of one group are not located in adjacent slots since it would have allowed

for greater flexibility to said cards being physically located at any slot in said box.

23.   Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO

93/15464; cited by applicant] in view of Applicant's Admitted Prior Art (hereinafter AAPA).

Referring to claim 34 the term "the number of types of cards" is considered as --a number of types of cards-- because of the claim rejection – 35 USC § 112, 2nd paragraph about the term "the number of types of cards" in claim 34. Porter et al. disclose said switch according to claim 31, wherein said at least one controller divides said cards into a number of groups. Porter et al. do not disclose said number of groups equal to said number of types of cards included in said plurality of cards. AAPA states it is desired to form separate connections using different protocols (i.e. different types of communication cards) without signal conversion by creating separate networks which are not interconnected (i.e. wherein the fact that said different types of communications cards forms said separate networks without said signal conversion implies that said number of separate networks (i.e. number of groups) equal to said different types of communications cards (i.e. number of types of cards) included in said plurality of communications cards (i.e. said plurality of cards)). Refer to page 2, lines 6-9 of AAPA.

24.   Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porter et al. [PCT WO 93/15464; cited by applicant] in view of Riley [USPN 5,875,351].

Referring to claim 38, Porter et al. disclose all the limitations of claim 38 except that do not teach only one card writes to a sub-bus at any single time. Riley discloses a distributed DMA architecture, wherein only one card (network card 120 of Fig. 2) writes to a sub-bus (PCI bus 112 of Fig. 2) at any single time (See Fig. 8 and col. 19, lines 19-30). Therefore, it would have been obvious one of ordinary skill in the art at the time the invention was made to have included said distributed DMA architecture, as disclosed by Riley, in said switch, as disclosed by Porter et al., for the advantage of individual DMA channels can be distributed among said cards requiring DMA transfers, thereby supporting DMA on said sub-bus without requiring any change to existing software (See col. 4, line 65 through col. 5, line 2 of Riley).

Allowable Subject Matter

25.   Claims 12 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26.   The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 12 and 30, the limitations of those claims are deemed allowable over the prior art of record as the prior art fails to teach or suggest that said controller confiscates sub-buses from cards whose bus demand value without said confiscated sub-buses is lower than said bus demand value of a different card after said confiscated sub-buses are transferred to it.

Conclusion

27.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fujii et al. [USPN 5,467,348] disclose bandwidth allocation system of virtual path in asynchronous transfer mode.

Kurosawa et al. [USPN 6,047,288] disclose group environment setting method and system thereof to provide an equivalent environment for plural participants.

Goldstein [USPN 5,452,230] discloses bus oriented switching system for asynchronous transfer mode.

Gephardt et al [USPN 5,901,332] disclose system for dynamically reconfiguring subbusses of data bus according to system needs based on monitoring each of the information channels that make up data bus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher E. Lee whose telephone number is 703-305-5950. The examiner can normally be reached on 9:00am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter S. Wong can be reached on 703-305-3477. The fax phone numbers for the organization where this

application or proceeding is assigned are 703-305-3718 for regular communications and 703-746-9248

for After Final communications.

   Any inquiry of a general nature or relating to the status of this application or proceeding should

be directed to the receptionist whose telephone number is 703-305-3900.

                                        Christopher E. Lee
                                        Examiner
                                        Art Unit 2181

cel/ *CEL*
July 29, 2002

                                        SUMATI LEFKOWITZ
                                        PRIMARY EXAMINER